

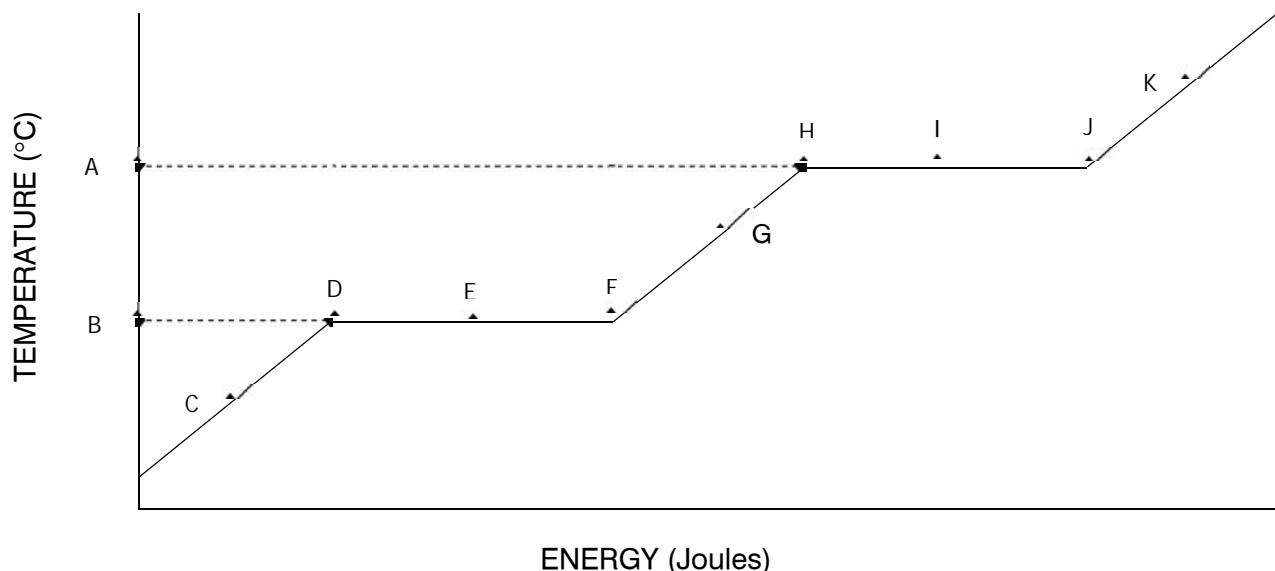
WORKSHEET 17

Chemistry 110

Name _____
(last) (first)

Due date: _____

A. Answer the questions below with respect to the following warming curve:



- Circle the letter that corresponds to the freezing point. 1. A B C D E F G H I J K
- Circle the letter that corresponds to the boiling point. 2. A B C D E F G H I J K
- Circle the letters that correspond to points where the substance is present only in the liquid state. 3. A B C D E F G H I J K
- Circle letter that corresponds to the point where the substance is present in both liquid and gaseous states. 4. A B C D E F G H I J K
- Circle the letter that corresponds to the point where the substance is present in both solid and liquid states. 5. A B C D E F G H I J K
- Circle the letters that correspond to the points where the substance is present only in the solid state. 6. A B C D E F G H I J K
- If this was the warming curve for water, what kind of bonds (attractive forces) are being broken between point H and J? 7. _____

B. Solve the following problems, giving complete set-ups, including all units, and using correct significant figures. If work is not shown, NO CREDIT will be given for the correct answer.

FREEZING POINT = 0.00 °C	<u>PHYSICAL CONSTANTS FOR WATER</u>	BOLING POINT = 100.00°C
SPECIFIC HEATS:	SOLID WATER = 2.10 J/g °C	LIQUID WATER = 4.18 J/g °C
	GASEOUS WATER = 2.0 J/g °C	
HEAT OF FUSION = 335 J/g	HEAT OF VAPORIZATION = 2.26 kJ/g	

- How much energy, in kilojoules, is needed to change the temperature of 123 kilograms of liquid water from 20°C to 35°C? 1. _____

FREEZING POINT = 0.00°C

PHYSICAL CONSTANTS FOR WATER

BOLING POINT = 100.00°C

SPECIFIC HEATS:

SOLID WATER = $2.10\text{ J/g }^{\circ}\text{C}$

LIQUID WATER = $4.18\text{ J/g }^{\circ}\text{C}$

GASEOUS WATER = $2.0\text{ J/g }^{\circ}\text{C}$

HEAT OF FUSION = 335 J/g

HEAT OF VAPORIZATION = 2.26 kJ/g

2. How much energy, in joules, is needed to change 26.5 g of solid water at 0.0°C to liquid water at 48.3°C ? 2. _____
3. 5.00 grams of solid water at 0.00° are heated to 78.3°C . How much energy, in joules, must be added to cause this change? 3. _____
4. How many joules of energy must be added to 75.0 grams of solid water at -17°C to melt and raise its temperature to 99°C ? 4. _____
5. How much energy, in joules, are released when 9.45 g of gaseous water at 100.00°C is condensed and cooled to 18.6°C ? 5. _____
6. To what temperature will liquid water be raised when 2298 joules of energy are added to 4.50 g of solid water at 0.00°C ? 6. _____